Soil and Water Conservation News

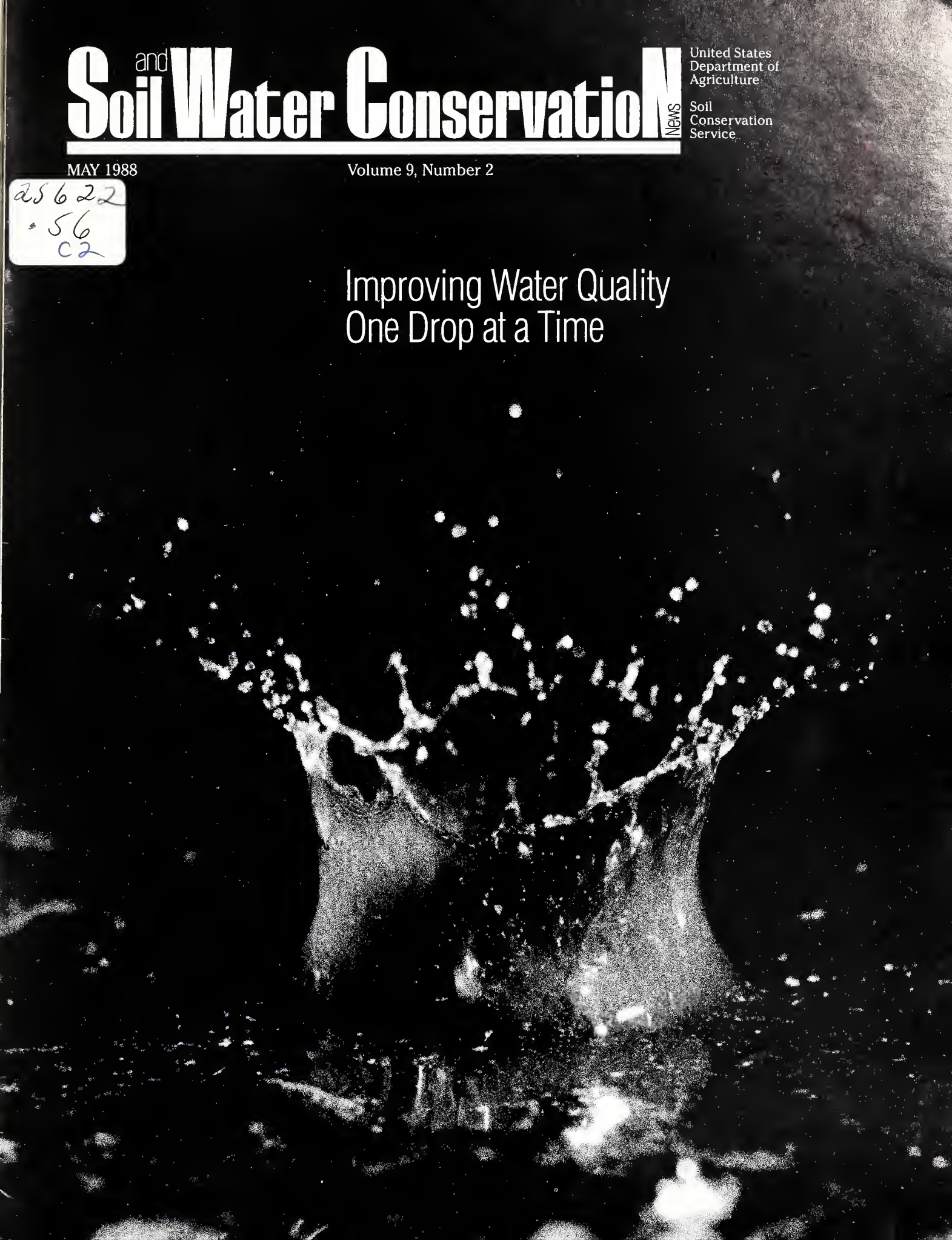
United States Department of Agriculture

Soil Conservation Service

MAY 1988

Volume 9, Number 2

Improving Water Quality One Drop at a Time



Cover: The challenge of maintaining the quality of most surface and ground water begins with the explosive impact of a raindrop, captured here in a closeup photograph.

Soil and Water Conservation News is the official magazine of the Soil Conservation Service. The Secretary of Agriculture has determined that publication of this periodical is necessary in the transaction of public business required by law of this Department. Use of funds for printing *Soil and Water Conservation News* has been approved by the Director of the Office of Management and Budget. *Soil and Water Conservation News* (ISSN-0199-9060) is published 12 times a year. Postage paid at Washington, D.C.

Richard E. Lyng
Secretary of Agriculture

Wilson Scaling
Chief, Soil Conservation Service

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Nancy M. Garlitz
Editor

Paul D. Barker
Associate Editor

Ann P. Serota
Editorial Assistant

Christopher Lozos
Design Consultant

Magazine inquiries
Send inquiries to: The Editor, *Soil and Water Conservation News*, Public Information Division, Soil Conservation Service, U.S. Department of Agriculture, P.O. Box 2890, Washington, DC 20013-2890.

Subscriptions
Send subscription orders to: Superintendent of Documents U.S. Government Printing Office Washington, DC 20402

Comments from the SCS Chief:

Commonsense Policy for Clean Water

Common sense tells me that effective conservation programs and policies respect local needs and local decisions. I'm happy to say that common sense prevails in the water quality policy of the Soil Conservation Service.

It is SCS policy to:

•Respect State and local governments' decisions in defining water use, establishing water quality standards, and setting priorities for action. SCS will give State and local governments technical help in meeting the water use and water quality goals they set.

•Continue to emphasize *voluntary* action by landowners and land users. We'll go out of our way to help people figure out how to prevent water pollution. We want to minimize the need for regulatory restrictions on the use of chemicals essential to agricultural production.

•Give water quality more attention in SCS technical assistance programs.

•Support research that helps us figure out where pollutants are coming from and what off-site effects they have.

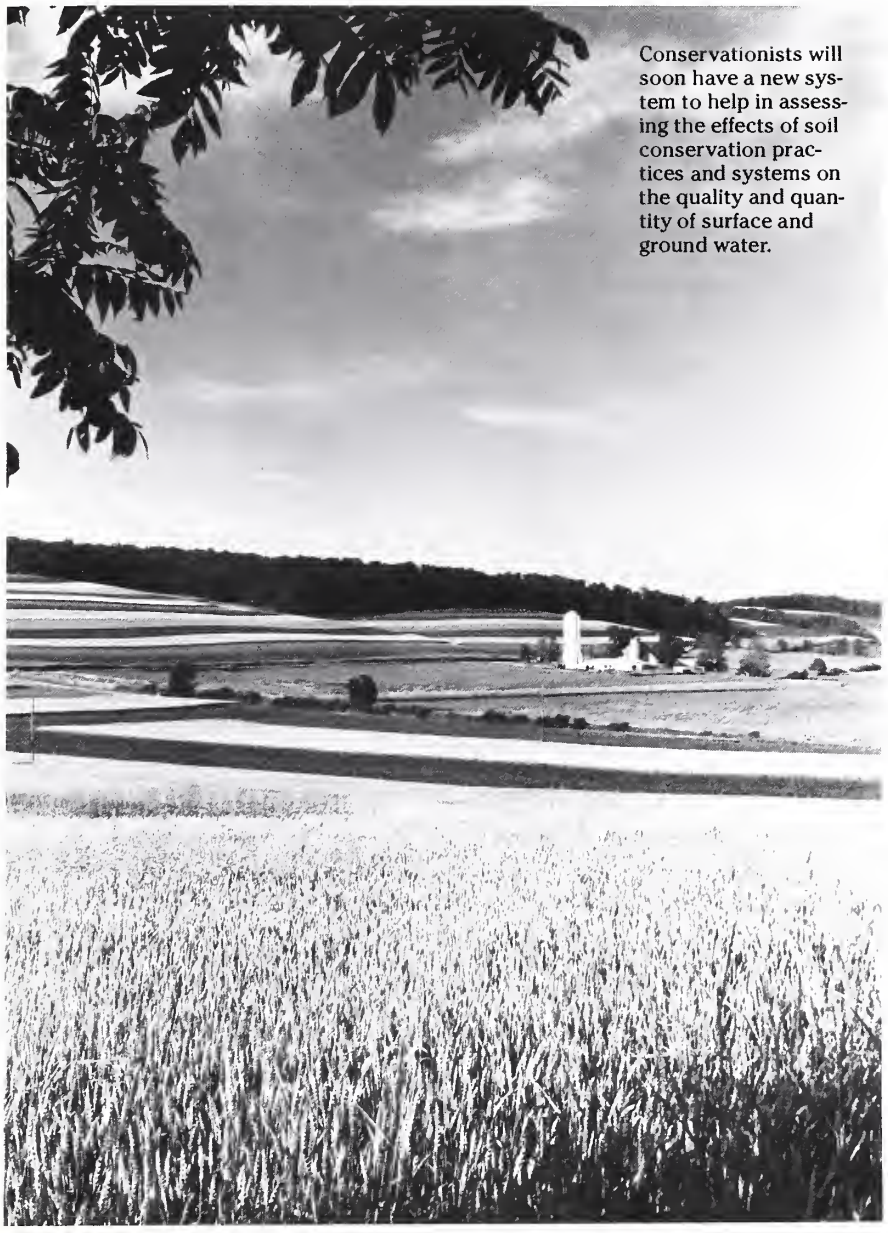
•Make sure we're trained to identify and help solve water quality problems.

In shaping SCS water quality activities and priorities we are considering the public comments received on the draft National Conservation Program update. The final program will guide U.S. Department of Agriculture soil and water resource activities for the next decade. This public participation will help ensure that common sense remains a part of SCS policy.

Water Quality

SCS Carries Out Water Quality Action Plan

CHANGING FARMING techniques and the use of different amounts and varieties of agricultural chemicals have created new demands for protecting both the quantity and quality of surface and ground water. In response, the Soil Conservation Service is developing tools for conservationists to use in helping farmers and ranchers plan and apply conservation systems that more specifically account for water resources, both quality and quantity.



Conservationists will soon have a new system to help in assessing the effects of soil conservation practices and systems on the quality and quantity of surface and ground water.

As part of the agency's Water Quality Action Plan, a task force of SCS national headquarters and national technical center personnel is developing a Comprehensive Water Quality Evaluation System (CWQES) to supplement field office technical guides. Conservationists will be able to use the CWQES to better assess the effects of conservation practices and combinations of practices on the water resource.

The evaluation system will be adapted to field office use without changing current planning procedures set by the National Conservation Planning Manual.

In developing the CWQES and associated technical backup, the task force will be using data and information from the U.S. Geological Survey and the U.S. Department of Agriculture's (USDA) Cooperative State Research Service and Agricultural Research Service.

The CWQES is scheduled for introduction to SCS State offices in October 1988 so that use at the field office level can begin by January 1989. In cooperation with USDA's Extension Service, training will be provided beginning in October to State offices in customizing evaluation techniques to local conditions. The CWQES will be the first generation of a water quality evaluation technique that SCS will continue to refine well into the next decade.

Jim Krider, national environmental engineer, SCS, Washington, D.C.

Working to Protect Ground

Cropping Reduces Saline Seep

THE MONTANA SALINITY Control Association (MSCA) has entered into a cooperative agreement with the Soil Conservation Service to help control saline seeps in 33 eastern Montana counties.

Soil salinity problems in the area have been increasing over the past 40 years. An estimated 300,000 acres is now out of agricultural production because of salt damage from saline seeps, and there are increased concerns about the effects of saline seeps on water quality for the general public.

The total dissolved solids in the ground water in the saline seep areas ranges from 3,000 to 70,000 mg/L, depending on the underlying geology. The recommended standard for drinking water in Montana is 500 mg/L. Sea water averages about 35,000 mg/L.

"If the problem goes unchecked," said Marvin Miller, chief hydrogeologist with the Montana Bureau of Mines and Geology, "there is the possibility of widespread degradation of our shallow ground water system in the northern plains." Miller said the reversal of shallow ground water degradation is not as readily achieved as with surface supplies.

MSCA, which is partly funded by the State, was formed by conservation districts to help farmers reduce saline seeps and reclaim salt-damaged land. The association provides public education programs and works with landowners to identify problem areas and develop site-specific reclamation plans. Under the agreement, signed in November of 1987, SCS provides technical assistance with implementation of reclamation plans.

Most of the saline seeps can be traced to the area's low rainfall and salty geologic deposits coupled with summer fallow farming, which increases deep percolation of soil moisture. Because of the low rainfall, most dryland grain farmers grow crops in alternate years in a crop-fallow rotation. The fallow year is used to increase soil moisture storage, but the system is inefficient. Deep percolation from fallowed land results in leaching of salts and artificial buildup of shallow ground water systems. The saline ground water moves laterally over impermeable clays or shales, and it approaches the soil surface at low areas of the landscape. Evaporation causes upward movement of saline waters toward the soil surface. As the water evaporates, residual salts are left on the soil surface. Because of the high water table and increased salts, these areas cannot be farmed and also threaten the quality of surface water.

Recommendations to control saline seeps are aimed at intensifying crop water use in upslope recharge areas. Many areas cannot support annual cropping, however, farmers are encouraged to vary

Evaporation of ground water at a saline seep leaves salt deposits on the soil surface.

The goal is to see ground water as it relates to other natural resources and different land uses.

their cropping program based on soil moisture conditions. Alfalfa rotations, in combination with annual cropping during years with favorable moisture conditions, will reduce ground water recharge. This system promotes more efficient use of annual precipitation, allowing for a decline in shallow ground water levels. Natural precipitation causes the salts to leach back down into the soil profile below the root zone of crops when the ground water table is lowered. This results in a return of salinized land to production, a reduction in soil erosion, and an improvement in water quality.

Jane Holzer, program leader, Montana Salinity Control Association, Conrad, Mont.

GIS Monitors Ground Water

AS EARLY AS THIS summer, decisionmakers in central Wisconsin will be able to use a GIS to look at their ground water. GIS is short for a Geographic Information System.

With a GIS, several layers of map data can be managed simultaneously to automate the cumbersome job of gathering and analyzing information for specific locations. An interagency group is developing a GIS for evaluating ground water quality and supply in the 10 Wisconsin counties in the Golden Sands Resource Conservation and Development (RC&D) Area. The goal is to see ground water as it relates to other natural resources and different land uses.

The area's sandy, porous soils are used to grow about 200,000 acres of irrigated potatoes, beans, and other vegetables. The ground water is close to the soil surface (1 foot to 30 feet), and contamination is a problem. About 20 percent of the private wells exceed the State's standard for nitrates in drinking water. State agencies have also detected 13 different pesticides in the water.

To deal with the problem, the Golden Sands RC&D Council hosted an interagency meeting in 1984 for officials from Portage County, the Wisconsin Department of Natural Resources (DNR), the Wisconsin Geological and Natural History Survey, the Central Wisconsin Groundwater Center, the University of Wisconsin, and the Soil Conservation Service. The officials agreed that information needed to be consolidated and evaluated before making any decisions and decided to do it with a GIS. Together, they formed the Central Sands Geographic Information Program and selected Portage County as the pilot county. Most farmers support the program because they see the need for accurate data.

By July 1987, the agencies had gathered data for six layers in the GIS: soils, land use/cover, regulated contaminant sources, well inventory, hydrologic maps, and the base map layer.

The soils layer consists of SCS soils data from the Portage County soil survey. The county planning department provided data for the land use/cover layer. This layer identifies agricultural land, irrigated agricultural land, woodland, grassland, residential land, undeveloped tracts, built up incorporated land, industrial sites, commercial sites, extraction pits, publicly owned land, single residences, churches, and cemeteries.

The regulated contaminant source layer provides information on animal waste storage sites, auto salvage yards, commercial fertilizer and pesticide warehouses, landfills, abandoned landfills, municipal land disposal, sludge spreading, accidental spills, salt storage, and industrial waste disposal sites. This information came from the county and the Wisconsin DNR.

The well inventory combines well construction records with water quality testing data from the county, the university, and the Wisconsin DNR. The hydrologic map layer provides data on aquifer potential, bedrock geology, and ground water flow. The base map layer combines public land survey, surface water, transportation, wetlands, and topography maps. An additional layer on underground storage tanks is being considered.

When the GIS is fully operational, it will be able to provide ample information in a matter of minutes for making wise decisions in the use of the county's resources.

John A. Kruger, Golden Sands RC&D coordinator, SCS, Stevens Point, Wis.

Credit for Clean

Farmers Recognized For Improving Water

REGION V of the U.S. Environmental Protection Agency (EPA) has begun an awards program to recognize individuals for their outstanding efforts in improving and protecting water quality. Not surprisingly, many of those recognized are farmers who voluntarily work with local conservation districts and the Soil Conservation Service to reduce runoff and soil erosion.

The program covers Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. Representatives of the Federal, State, and local agencies that work with landowners on reducing nonpoint source pollution select each State award winner .

Lester Fitzgerald of Frazeyburg, Ohio, a 1987 award winner, is typical of recent winners. He is a former long-term supervisor for the Muskingum Soil and Water Conservation District.

Fitzgerald runs a cow-calf beef operation and uses no-till on all of his cropland. SCS has provided technical assistance to Fitzgerald in planning and using erosion control structures, grassed waterways, and proper drainage practices. According to SCS District Conservationist Charles McCluskey, the combination of conservation practices on Fitzgerald's farm has reduced soil erosion and the amount of sediment and nutrients sent downstream.

Larry Vance, chief, Division of Soil and Water Conservation, Ohio Department of Natural Resources, said interagency cooperation and recognition of farmers like Fitzgerald are critical to accomplishing nonpoint source pollution reduction goals.

Bruce Kirschner, SCS liaison to EPA, Region V, Chicago, Ill.

By using combinations of conservation practices recommended by the Soil Conservation Service through local conservation districts, farmers are reducing soil erosion and the amount of sediment and nutrients entering streams, rivers, and lakes.

Water

Managing for Cleaner Water

DAIRY FARMERS in easternmost West Virginia are working through two conservation programs to improve animal waste management systems and ground water.

In Jefferson and Berkeley Counties, W.Va., a combination of rich but porous farmland with concentrations of dairy cows was leading to contamination of underground water supplies. By the 1980's, local officials were concerned about the increasing nitrate and coliform levels in the area's drinking water, which is drawn from wells, springs, and spring-fed streams.

At the request of the Jefferson County Commission and the Eastern Panhandle Soil Conservation District, the Potomac Headwaters Resource Conservation and Development (RC&D) Area addressed the problem. The Soil Conservation Service determined in 1983 that ground water quality could be improved if 12 dairies in the Shenandoah River drainage area had better waste management systems. With cost-sharing and technical assistance provided by SCS through the RC&D program, more than 90 percent of the needed facilities have now been built.

On its western side, Jefferson County joined with Berkeley County and two Virginia counties to improve water quality in the Opequon Creek watershed. Opequon Creek flows into the Shenandoah River. With the approval in 1987 of a project under the Small Watershed Protection Act (Public Law 566), 34 dairy farms in the watershed became eligible for 50 percent cost-sharing assistance for construction of facilities designed by SCS. New animal waste facilities have already been constructed on two of the farms.

Although much work remains to be done, local veterinarians and the milk inspector have already reported an improvement in the overall health of the area's dairy herds. The farmers who are applying the animal waste on their cropland have reduced their fertilizer costs, and public service districts are having to spend less on the treatment of drinking water.

Bob Ensor, area conservationist, SCS, Romney, W. Va.

With assistance provided through an RC&D project, Charles Hough recently installed a new concrete waste storage structure on his farm in Jefferson County, W.Va. Wastes from his dairy cows go to the new structure, at left, from where they are pumped to crop fields through an irrigation system. Hough said his investment in the system was "the best money I ever spent. My fertilizer costs have dropped, and our crops are better due to irrigation with liquid wastes."

Rural Clean Water

Managing Runoff To Protect Lake

DAIRY FARMERS AND cattle ranchers in south-central Florida are working to reduce the flow of phosphorus from animal waste into Lake Okeechobee–the second largest inland freshwater lake in the United States. With financial and technical assistance provided through a Rural Clean Water Program (RCWP) project, they are applying best management practices (BMP's) such as systems to recycle livestock manure.

Lake Okeechobee is the primary source of water for five nearby cities and a secondary water source for the Miami area. Recreational and commercial fishing on the lake generate more than $8.6 million annually.

According to one study, phosphorus loads in the lake doubled in the period 1973-1984. This increased plant growth in the water, which can lead to the process of eutrophication in which the amount of dissolved oxygen available for fish is drastically reduced.

The RCWP project, begun in 1981, aims to reduce the phosphorus in the runoff of two drainage basins that provide 35 percent of the water entering Lake Okeechobee. RCWP, which is administered by the Agricultural Stabilization and Conservation Service, is designed to demonstrate the effectiveness of BMP's in solving nonpoint source water quality problems.

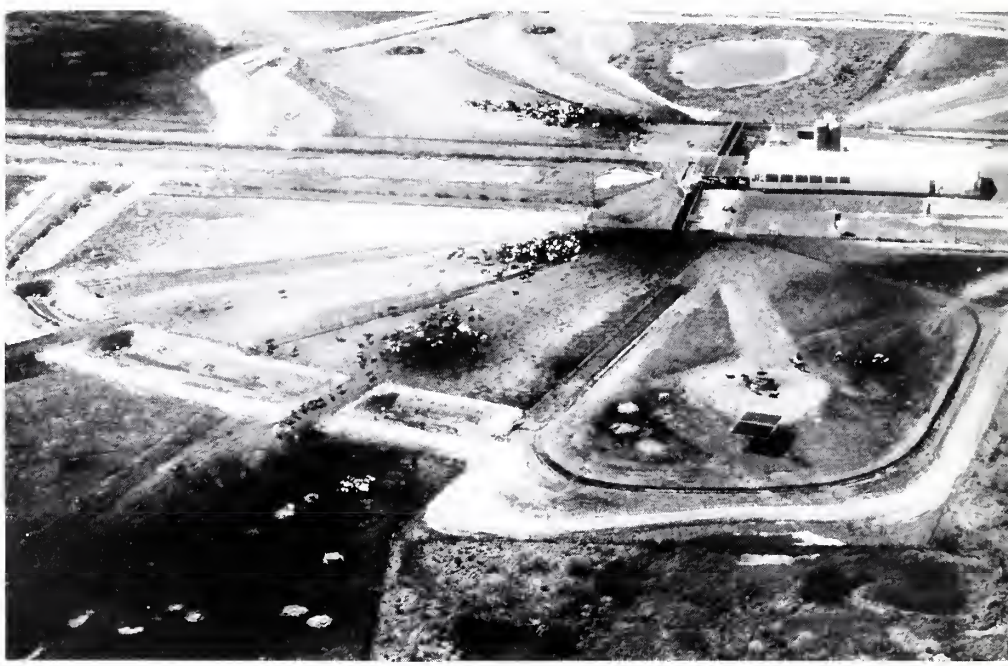
The RCWP project for Lake Okeechobee was initially begun in the Taylor Creek-Nubbin Slough drainage basin on the northeast side of the lake. Of the 110,000 acres in this basin, it was determined that 55,000 acres were critical and would be addressed with BMP's. Included in the critical acreage were all lands used for dairy operations and any beef cattle pastures within a quarter mile of a flowing stream.

The program began with $1.25 million allocated from the Federal Government and $250,000 from the South Florida Water Management District. Planning and contracting in the basin were completed in July 1986, with 96 percent of the landowners entering into contracts to apply BMP's.

In August 1986, a large algae bloom in the lake prompted officials to intensify their efforts. The Lake Okeechobee technical advisory committee recommended that the use of BMP's be expanded to include water management on bare areas around dairy barns where heavy use by livestock has destroyed the plant cover. An additional $650,000 in Federal funds and $2.5 million in State funds were allocated to expand the RCWP project into the Lower Kissimmee River basin on the northwest side of the lake.

A total of 15 dairy barns in the Lower Kissimmee River basin are considered critical. The average dairy herd is 900 cows, and the areas where they congregate receive high concentrations of manure. The sandy soils in these areas have a high water table and very poor potential for binding phosphorus in the soil profile. As a result, a major emphasis of SCS has been to help the farmers design systems that balance the amount of phosphorus produced in animal manures with the amount that can be used for crops.

Using a water management computer model (DRAINMOD), SCS personnel are able to design the size of



Projects

waste storage ponds and irrigated fields based on the size of the bare areas around the barns and rainfall patterns over the past 20 years. The areas around the barns are then ditched, diked, and drained to allow for the capture and subsequent application of the phosphorus-rich manure to crop fields.

More than 95 percent of the scheduled BMP's in the original project basin have now been installed, and completion of the remaining practices is expected by the fall of 1988. By 1987, there was a reduction of about 20 percent in the amount of phosphorus entering the lake through the basin. In the Lower Kissimmee River basin all of the dairy farms have requested contracts, and seven plans have been completed.

Lorin Boggs, district conservationist, SCS, Okeechobee, Fla.

A system of ditches, dikes, and drainage culverts captures the manure in the high intensity use areas of Dry Lake Dairy No. 2, Okeechobee County, Fla., for later application to crop fields. This 700-cow operation is one of 15 dairy barns in the Lower Kissimmee River basin where the proper management of animal waste is critical for protecting the water quality of Lake Okeechobee.

Working to Protect Rural Water

NEBRASKA'S Long Pine Creek watershed is a diverse 458-square-mile area where flat to rolling farmland borders deep, rugged canyons dotted with pine and cedar. Spring-fed streams in the canyons support abundant wildlife, including trout in some stream reaches. Land uses range from prairie to cropland to forests, and the landscape appears so natural and productive that few would suspect a problem with water quality.

But ground water in the watershed is close to the surface, and the rapid permeability of the soil increases the potential for contamination from fertilizers and pesticides. The quality of the surface water is threatened by uncontrolled storm runoff, irrigation runoff, livestock feedlots, and streambank erosion problems caused by livestock.

This past year marked the 6th year of a 15-year Rural Clean Water Program project to protect and improve the water quality in the watershed. Through this project, the Soil Conservation Service of the U.S. Department of Agriculture (USDA) has helped 86 landowners–representing 79 percent of the 54,212-acre critical area–in the watershed to develop water quality plans to control nonpoint source pollution.

SCS is providing technical assistance to these landowners in the application of best management practices such as irrigation water management in conjunction with tailwater recovery pits and irrigation pipelines; fertilizer and pesticide management; cedar revetments, grass seedings, and tree plantings along streambanks; diversions and grade stabilization structures; and critical area treatment structures for roadsides. USDA's Agricultural Stabilization and Conservation Service is providing financial assistance. By improving their management, the farmers have already reduced their use of nitrogen fertilizer by more than 800,000 pounds and reduced pesticide use by more than 112,000 pounds .

The Ainsworth Irrigation District this past year completed a reservoir that will store approximately 2,000 acre-feet of irrigation water. This structure will help improve irrigation efficiency, reduce erosion, and reduce pumping costs.

Joint efforts are underway in the watershed to gather baseline data on water quality to monitor progress. These efforts are coordinated with the Nebraska Department of Environmental Control, Nebraska Game and Parks Commission, the Middle Niobrara Natural Resources District, and the Cooperative Extension Service. Additional assistance has been provided by the Ainsworth Irrigation District and local landowner groups.

"We are achieving our goals in the project area," said Gayle Siefken, SCS district conservationist at Ainsworth. "In fact, many producers outside the project area are adopting the practices they see demonstrated in the project."

Jerry Hardy, soil conservation technician, SCS, Ainsworth, Nebr.

One out of every six Americans lives in a Gulf coastal area, and two-thirds of the contiguous United States drains into the Gulf.

Developing Gulf Initiative

THE U.S. Environmental Protection Agency (EPA) recently opened a headquarters office in Bay St. Louis, Miss., for The Gulf Initiative–a new interagency effort to improve the management of the natural resources of the Gulf of Mexico.

The Gulf Initiative will be larger than but similar to regional cleanup programs underway for the Great Lakes and Chesapeake Bay. It will initially involve several Federal agencies, including the Soil Conservation Service; State and local organizations in Texas, Louisiana, Mississippi, Alabama, and Florida; and the Republic of Mexico.

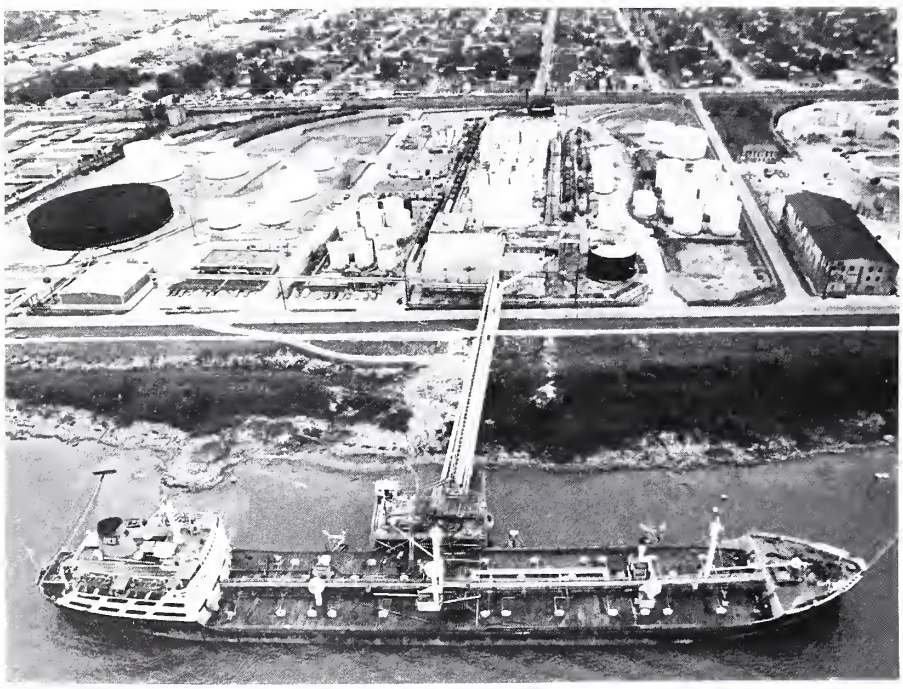
The United States encloses the Gulf on three sides, with a coastline of more than 1,600 miles. One out of every six Americans lives in a Gulf coastal area, and two-thirds of the contiguous United States drains into the Gulf. The Gulf produces about 40 percent of the U.S. commercial fish yield, supports a valuable shrimp industry, and provides much of the Nation's coastal wetlands and habitat for migratory waterfowl. About 45 percent of the country's shipping goes through Gulf ports, and about 90 percent of the country's offshore oil and gas comes from the Gulf.

For a long time, the Gulf was perceived as having boundless resources. Increased seafood consumption and the loss of natural habitats, however, have combined to create serious conflicts among users of the Gulf, its coastal environments, and its resources.

A notable example is the conflict between those who fish for recreation and those who fish for a living. Recent popularity of Cajun blackened redfish (or red drum) has increased the commercial demand for it while reducing its availability for those who fish for sport.

Another conflict concerns plant nutrients. Although the amount of plant nutrients discharged into the Gulf from local wastewater is significant, nearly 10 times as much comes from upstream sources. Excessive nutrients in the water causes blooms of microscopic plant life that deplete dissolved oxygen levels when they die and decompose. Fish and other marine animals cannot survive if the dissolved oxygen supply becomes too low. Excessive nutrients can also cause blooms of noxious phytoplankton that have toxic effects.

The need for a regional approach for addressing the Gulf's problems was suggested in 1986 at an EPA workshop attended by some 60 people representing different levels of government, industry, academia, and citizen associations. A task force, which included an SCS representative, subsequently developed a proposal for the Gulf Initiative. The proposal seeks to involve a broad coalition of groups to assess the problems of the Gulf and to develop an effective strategy for managing and protecting the Gulf as a valuable resource.



About 45 percent of the country's shipping goes through ports on the Gulf of Mexico. The ship here is being loaded with grain for export from the Port of New Orleans.

Jane McConathy, public affairs specialist, EPA, Atlanta, Ga.

"The new agreement sets specific water quality goals and objectives . . . One goal is to reduce both nitrogen and phosphorus nutrient loads to Bay waters by 40 percent by the year 2000."

New Chesapeake Bay Agreement Signed

EFFORTS TO RESTORE the Chesapeake Bay received a boost with the signing of a new agreement in December 1987 by the mayor of the District of Columbia; the governors of Maryland, Pennsylvania, and Virginia; the administrator of the U.S. Environmental Protection Agency (EPA), and the chairman of the Chesapeake Bay Commission.

The new agreement expands on and refines one signed in 1983. In addition to EPA, Federal agencies participating in the Chesapeake Bay Agreement are the U.S. Fish and Wildlife Service, U.S. Department of Defense, U.S. Army Corps of Engineers, U.S. Geological Survey, National Oceanic and Atmospheric Administration, and the U.S. Department of Agriculture's Forest Service and Soil Conservation Service.

"The new agreement sets specific water quality goals and objectives," said SCS Chesapeake Bay Liaison Gerald Calhoun. "One goal is to reduce both nitrogen and phosphorus nutrient loads to Bay waters by 40 percent by the year 2000."

As a part of its agricultural initiatives, Pennsylvania requires landowners to have a nutrient management plan before they can receive State cost sharing on standard conservation practices. "The amount of animal waste applied on the land has to be in balance with nutrient needs of the crop before cost sharing on terraces or other practices begins," said Calhoun. Maryland and Virginia are modifying their State cost-share programs to also require nutrient management plans.

SCS provides technical assistance for the planning and installation of conservation practices under the Agricultural Conservation Program (ACP) and Rural Clean Water Program (RCWP) administered by ASCS. SCS is also tracking the effectiveness of practices applied under ACP and RCWP and the practices applied under State cost-share programs.

Another program increasingly involved in the Chesapeake Bay cleanup is the Conservation Reserve Program (CRP), which is one of the conservation provisions of the Food Security Act of 1985. Under CRP, farmers receive financial and technical assistance for planting highly erodible cropland to grass, trees, or wildlife plantings. They then receive annual rental payments for maintaining the new cover for a minimum of 10 years.

A recent change allows filter strips on cropland along streams and around water bodies to be eligible for CRP. This will enable many farmers to further improve the quality of runoff entering the Bay and its many tributaries.

Kim M. Berry, Public Information Division, SCS, Washington, D.C.

"Grasses help to hold both soil and water on the land," said Scaling. "That reduces sedimentation of downstream water supplies and allows water to soak into the aquifer."

Managing Rangeland for More, Better Water

GOOD RANGELAND management benefitted a Texas town's municipal water supply while protecting soil and water resources.

In the early 1960's, landowners of five ranches covering about half of the West Rocky Creek watershed in Texas began extensive range improvement with assistance from the Soil Conservation Service through the local soil and water conservation district. The ranchers enhanced grass cover by reseeding the range, controlling brush, and managing grazing more closely. By 1970, springs that had been dormant since the 1930's began to flow on all five ranches. West Rocky Creek now supplies about 7 percent of the municipal water supply for San Angelo, 20 miles away.

At the Society for Range Management's annual meeting in February in Corpus Christi, Tex., Soil Conservation Service Chief Wilson Scaling recommended "keeping an adequate cover of grass and other forage to hold the soil and to protect water quality." He also recommended restoring native grasses.

"Grasses help to hold both soil and water on the land," said Scaling. "That reduces sedimentation of downstream water supplies and allows water to soak into the aquifer. More water. . .and better water. . . that's a real plus."

SCS Employees Detailed to EPA

THE SOIL Conservation Service has assigned eight employees to the Environmental Protection Agency (EPA) to coordinate SCS activities with EPA water quality programs. Currently employees are stationed at EPA regional offices in Massachusetts, New York, Pennsylvania, Illinois, Texas, and Kansas. The position in Georgia will be filled soon.

The SCS specialists will advise EPA on practical ways to address nonpoint source pollution and other water quality issues. This includes working with State and local agencies, conducting site visits, and helping to develop nonpoint source pollution control strategies and programs. Following are brief descriptions of some of the activities of SCS employees detailed to EPA regional offices:

Robert Morehouse, SCS soil conservationist at EPA's Region I office in Boston, Mass., has organized interagency nonpoint source pollution control workshops and meetings as well as provided technical assistance to EPA staff. Morehouse also helped develop urban stormwater runoff control projects for the region.

Anthony Dore´, SCS soil conservationist at EPA's Region II office in New York City, N.Y., is coordinating EPA program activities in the U.S. Virgin Islands and Puerto Rico and working with the Environmental Quality Board to develop a chicken manure processing plant.

The SCS specialists will advise EPA on practical ways to address nonpoint source pollution and other water quality issues.

Harvey Mack, SCS soil conservationist, has recently joined EPA's Region III office in Philadelphia, Pa., and will work on nonpoint source pollution activities related to agriculture, such as sediment, animal waste, and pesticides entering water bodies. Mack will review State water quality assessment plans and represent Region III in the Chesapeake Bay Program activities. Hiram Boone, SCS soil conservationist, had been detailed to EPA's Region IV office in Atlanta, Ga., and recently became the deputy State conservationist for Georgia. During his tenure at EPA, Boone coordinated activities of the Tennessee Valley Authority's Land and Water 201 Program and assisted in the development of the Gulf Initiative, a water quality improvement effort for the Gulf of Mexico. His replacement will be announced soon.

Bruce Kirschner, SCS soil conservationist, and Charles Loggins, SCS conservation agronomist, are working in EPA's Region V office in Chicago, Ill. Kirschner's duties have included: arranging for the Region V office to discuss nonpoint source pollution issues with the Ontario Ministry of the Environment. He also helped arrange meetings to discuss the 1988 tillage transect surveys in Michigan and Ohio and helped plan a nonpoint source pollution assessment workshop for State water quality agencies. Loggins also assisted with the National Association of Conservation Districts/EPA regional conference on nonpoint source pollution.

Samuel Chapman, SCS soil conservationist, is on board at EPA's Region VI office in Dallas, Tex. Chapman works with SCS State water quality coordinators and State conservationists in Region VI, helps plan nonpoint source pollution meetings with State agencies, and has involved the poultry industry in evaluating agricultural pollutants from animal waste entering the Illinois River.

Robert Hummel, SCS soil conservationist, is working with EPA's Region VII office in Kansas City, Kans. Hummel has developed slide programs on Section 319 of the 1987 Water Quality Act and coordinated a nonpoint source pollution modeling workshop for State water quality agencies. Hummel also presented EPA's view of a proposed animal waste management project and addressed wetland concerns.

These SCS employees detailed to EPA can provide information on EPA programs and State water quality agency activities. Their names and addresses are below.

Kim M. Berry, Public Information Division, SCS, Washington, D.C.

Robert N. Morehouse
U.S. Environmental Protection Agency - Region I
John F. Kennedy Building
WQE, Room 2103
Boston, MA 02202
FTS 835–3554

Anthony Doré
U.S. Environmental Protection Agency - Region II
Water Standards and Planning Branch
26 Federal Plaza
New York City, NY 10278
FTS 264–5624

Harvey Mack
U.S. Environmental Protection Agency - Region III
841 Chestnut Building
Philadelphia, PA 19107
FTS 597–9911

U.S. Environmental Protection Agency - Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365
FTS 257–2126

Bruce Kirschner/Charles Loggins
U.S. Environmental Protection Agency - Region V
WQS–TUB–08
230 South Dearborn Street
Chicago, IL 60604
FTS 886–0133

Samuel Chapman
U.S. Environmental Protection Agency - Region VI
1445 Ross Avenue
Dallas, TX 75202
FTS 225–7140

Robert Hummel
U.S. Environmental Protection Agency - Region VII
726 Minnesota Avenue
Kansas City, KS 66101
FTS 757–2817 ext. 422

NEWS Briefs

Filter Strips Come Under CRP

INSTALLING FILTER STRIPS on cropland next to streams and other bodies of water may qualify farmers for the U.S. Department of Agriculture's (USDA) Conservation Reserve Program (CRP).

USDA recently announced that filter strips are eligible for CRP even if they are not installed on highly erodible land. The filter strips must, however, reduce the amount of sediment that would normally reach a stream or body of water.

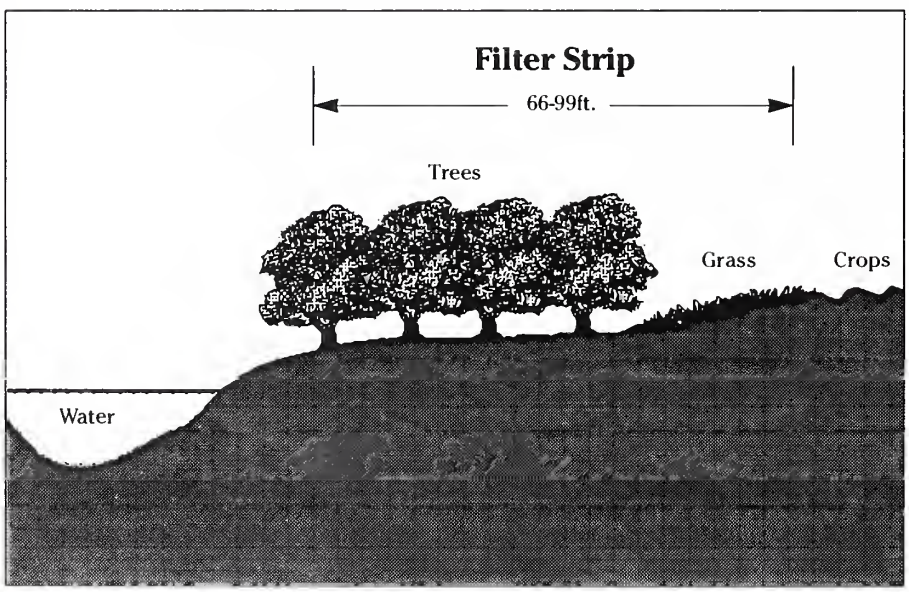
Under the new eligibility requirements, any farmer who plans to establish filter strips of grass, or grass and trees, 66 to 99 feet in width adjacent and parallel to a stream or body of water can enter land into the program.

Filter strips reduce soil erosion by providing a safe place for water to leave the field, preventing the formation of gullies and substantial soil loss.

In addition to improving water quality by reducing the amount of sediment and other pollutants reaching water bodies, filter strips can provide food and cover for wildlife. Improving water quality also provides more food and safe spawning areas for fish.

Any farmer wishing to enter cropland into the program can do so during the next signup which runs from July 18 through August 5. In return, USDA makes annual payments and shares the cost of establishing grass or trees on the land.

CRP is administered by the Agricultural Stabilization and Conservation Service, with assistance from other USDA agencies including the Soil Conservation Service and the Forest Service.



Agencies to Sponsor Nonpoint Source Pollution Control Conference

THE NATIONAL Association of Conservation Districts and the National Association of State Conservation Administrators will host a conference, The Water Quality Act of 1987, Making Nonpoint Pollution Control Programs Work, April 23-26, 1989, in St. Louis, Mo.

Participants will discuss nonpoint source pollution (NPS) control efforts, NPS problem priorities, implementation of plans in rural and urban settings, and sources of program funding.

Other conference sponsors include: the U.S. Environmental Protection Agency, the Association of State Departments of Agriculture, the North American Lake Management Society, the Soil and Water Conservation Society, the National Association of State Departments of Agriculture, and the Soil Conservation Service.

Guide Available On Safe Use of Crop Additives

"A GUIDE for Safe, Profitable Fertilizer and Pesticide Use" is available from the Soil and Water Conservation Society (SWCS).

The easy-to-read, four-color brochure suggests several steps for farmers to follow to make their use

of nitrogen and phosphate fertilizer more efficient, minimize the risk of using manure and other natural fertilizers, and enhance the effectiveness of pesticides–all while reducing health and environmental risks.

The guide can be used at farm management meetings and field days as a basis for discussions on water quality. Cost is $10 for 25 copies. The price per copy decreases with larger orders. To order copies write the Soil and Water Conservation Society, 7515 Northeast Ankeny Road, Ankeny, IA 50021–9764, or call (515) 289–2331.

Lake Management To be Reviewed

THE NORTH AMERICAN Lake Management Society will hold its eighth annual International Symposium November 15-19, 1988, in St. Louis, Mo., at the Clarion Hotel.

The symposium will provide a forum for reviewing a range of lake management issues from sources of pollutants to restoration techniques. Special emphasis will be on the influence of nonpoint source pollutants on lake water quality. Two special sessions on large river reservoir systems and acid rain are planned as well as field trips to nearby lake restoration projects.

Papers, abstracts, and posters presented at the symposium will be considered for publication in the journal, *Lake & Reservoir Management*. There will be a session for students to present original papers and posters. A $100 award will be presented for the best paper and poster.

For information or application requests write NALMS, P.O. Box 217, Merrifield, VA 22116, or call (202) 446-8550.

New Applicator Rolls Along

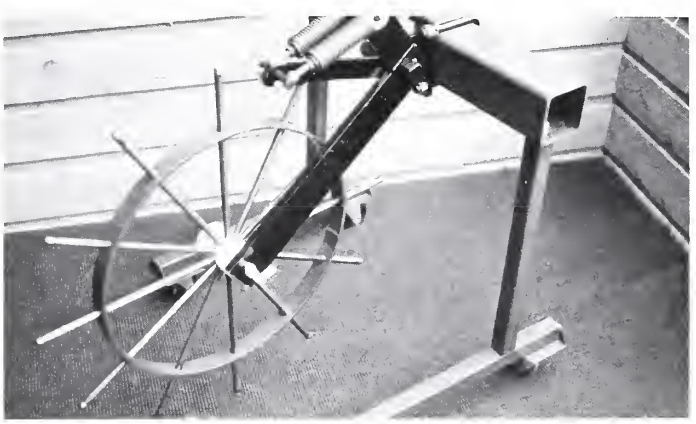
RESEARCHERS AT Iowa State University (ISU) have reinvented the wheel. Only this time instead of just rolling along the ground, the wheel injects a shot of liquid fertilizer into the soil every few inches.

The new wheel is called the Cady Wheel, after its chief inventor Bill Cady, who farms near Colo, Iowa. Technically, the Cady Wheel is a point injector fertilizer applicator designed to minimize fertilizer loss and the disturbance of the soil, roots, and crop residue. Its developers claim it can lower production costs, reduce soil erosion, and protect water quality in most tillage, planting, cultivating, and sidedress operations. They say it is particularly effective with conservation tillage.

From the side, the Cady Wheel looks like a stylized clock face. It rolls along on 12 spikes that poke into soil to a depth of about 5 inches. The central hub assembly acts as a rotary valve supplying a precise amount of fertilizer to each spike as it nears the down–or 6 o'clock–position.

ISU researchers began experimenting with the concept of a rolling fertilizer injector wheel about 1979. Cady, an ISU engineering graduate, became involved in the early 1980's as an employee of ISU's Agronomy Research Farm and was instrumental in the early designing, building, and testing phases. He has since founded a firm to build, test, and market the Cady Wheel.

The latest version sells for about $300 and can be attached to most implements with a universal mounting bracket. The bracket assembly is spring loaded to allow the Cady Wheel to swivel to compensate for any side loads applied.



The Cady Wheel is designed to inject fertilizer with a minimum amount of fertilizer loss and soil disturbance. It can be attached to most tillage, planting, and cultivating implements.

Moving?
Send present mailing label and new address including zip code to:

U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890, Room 6004-S
Washington, D.C. 20013-2890

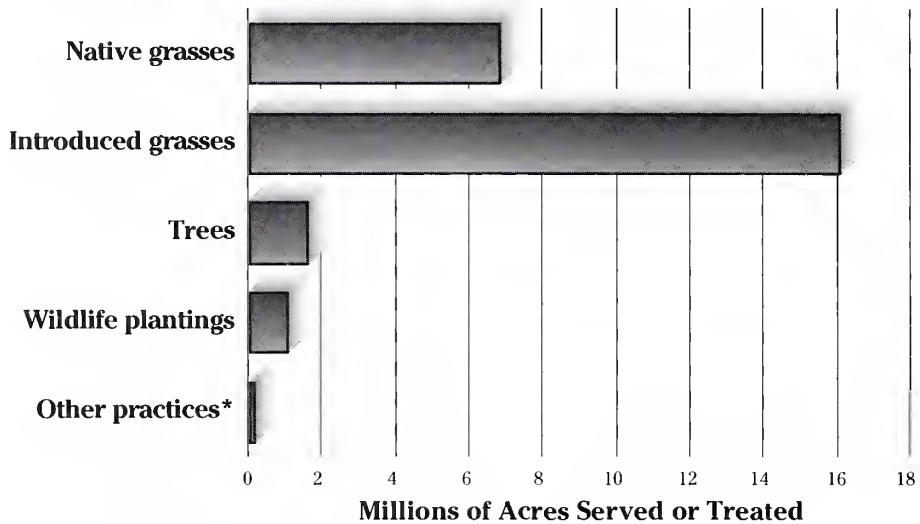
Official Business
Penalty for private use, $300

THIRD-CLASS BULK RATE
POSTAGE AND FEES PAID
USDA-SCS
WASHINGTON DC
PERMIT NO. G-267

CRP Update

A TOTAL OF 3,375,367 more acres was accepted into the Conservation Reserve Program (CRP) during the sixth signup, Feb. 1-19. Of this acreage, 396,593 acres is to be planted to trees. A total of 25,525,389 acres has now been accepted into the CRP, of which 1,581,946 acres is to be planted to trees. The graphs at right show the practices being applied on the CRP acreage. A seventh signup is scheduled for July 18th through August 5.

Land Covers on CRP Acres, Through 6th Signup



*Other Practices on CRP Acres, Through 6th Signup